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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
RALIS, STEPHEN J

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Patent Procurement
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/656,900

Applicant(s)

AXINTE ET AL.

Examiner

Stephen J. Ralis

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final. ✓
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 71,76,81,82 and 86-101 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 71,76,81,82 and 86-101 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 October 2007 has been entered.

Response to Amendment/Arguments

3. Applicant's arguments, see pages 6-13, filed 30 October 2007, with respect to the rejection(s) of claim(s) 71,72,76 and 81-92 under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Albietz (U.S. Patent No. 2,210,352). Albietz discloses a detachable solder tip having first and second electrodes disposed in a spaced apart manner at a terminal tip of the solder tip to create heat when the electrodes are shorted together by workpieces and solder.

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The “duty to disclose” statement is incorrect. The statement should read –I acknowledge the duty to disclose information which is material to patentability of this application in accordance with Title 37, Code of Federal Regulations Section 1.56. –.

A new oath or declaration with the correct “duty to disclose” statement in compliance with 37 CFR 1.67(a) is required.

Claim Objections

5. Claims 81 and 92 are objected to because of the following informalities:

Claim 81, line 8; “to enable electrical current to flow” should read –to enable an electrical current to flow–.

Claim 92, line 9; “to enable electrical current to flow” should read –to enable an electrical current to flow–.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 71, 76, 81, 82 and 86-101 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
8. Claim 81 recites the limitation "the terminal end" in line 5. There is insufficient antecedent basis for this limitation in the claim.
9. Claim 81 recites the limitation "the solder tip" in lines 5, 14-15. There is insufficient antecedent basis for this limitation in the claim.
10. Claim 92 recites the limitation "the terminal end" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Joint Inventors – Common Ownership Presumed

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 71, 76, 81, 82, 92, 93, 95-97, 99 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albietz (U.S. Patent No. 2,210,352) in view of Walton (U.S. Patent No. 3,899,654) and Kitsuda (U.S. Patent No. 2,092,218), as evidenced by Lee (U.S. Patent No. 5,954,458).

Albietz discloses a handheld body (see Figures 1, 2) adapted to house an electrical power storage source (power cable); a detachable solder tip (guide holder a having carbon electrode tip *b* and metal pin electrode *c*; column 2, lines 1-5; 28-41) mounted on the handheld body and electrically connectable to the electrical power

storage source (power cable) (see figure 1, 2), the detachable solder tip (guide holder *a*) having first and second electrodes disposed in a spaced apart manner at the terminal end of the solder tip (carbon electrode tip *b* and metal pin electrode *c*), such that a short is created across the first and second electrodes upon placement of an electrically conductive material external to the cordless soldering tool in electrical communication with the first and second electrodes to enable electrical current to flow through the detachable solder tip (column 2, line 28 –column 3, line 16); a light (electric bulb *g*) located on the handheld body, wherein the light is oriented such that the light can illuminate a working surface proximate the detachable solder tip (column 2, lines 21-27; column 4, claim 3); an electrical switch being the plug cable into the wall.

With respect to the limitations of claims 95 and 99, Albietz explicitly discloses the dual electrode structure (carbon electrode *b* and metal pin electrode *c*) being place into contact with the two pieces to soldered together in addition to heat being transferred to the two pieces to soldered and “onto the solder” at the point of soldering (column 2, lines 31-41).

With respect to the limitations of claims 96 and 97, Albietz explicitly discloses the soldering device only heating when placed into contact with the workpieces and the solder (column 2, line 28 –column 3, line 16). Therefore, Albietz fully meets “the detachable solder tip generates heat during the time that a short is created across the electrodes” and “the detachable solder tip cools when the short across the first and second electrodes is removed” given its broadest reasonable interpretation.

With respect to the limitations of claim 100, Albietz explicitly discloses the guide holder (a) carrying the carbon electrode (b) on one arm and insulating the other arm, the solder stick (c), from the carbon electrode (b) (column 2, lines 1-5).

Albietz discloses all of the limitations of the claimed invention, as previously set forth, except for the device being cordless with the electrical power supply being a battery.

However, a portable, cordless handheld soldering device with a battery as an electrical power storage source is known in the art. Walton, for example teach, a cordless soldering tool (Title) comprising: a handheld body (elongated body 11) adapted to house an electrical power storage source (battery means 25; see Figures 1, 4). Walton further teaches the advantage of such a configuration provides the ability to remove the costly electrically inefficient transformer and cord configuration, thereby increasing the overall operational efficiency and reducing the manufacturing costs of the soldering iron. It is further known in the art that making an old device portable or movable without producing any new and unexpected result involves only routine skill in the art.

15. Albietz further discloses all of the limitations of the claimed invention, as previously set forth, except for an electrical switch located on the handheld body, the electrical switch electrically connected between the detachable solder tip and the light and the electrical power storage source, the electrical switch capable of selectively powering the light without powering the solder tip for selectively powering the light without powering the detachable solder tip.

However, a handheld, cordless, portable heated tip device comprising an electrical switch for selectively powering the light with powering the heated tip is known in the art. Kitsuda, for example, teach a portable electric lamp/igniter device with a heated tip having a switch (15) for the lamp (6) that is selectively activated for powering the light without powering the heated tip igniter (column 1, lines 10-22, column 1, line 44 – column 3, line 16). Kitsuda further teaches the advantage of such a configuration provides a heated tip device that is constructed and function as a pocket lamp. Lee further teaches a cordless portable device with a separate switch for powering the light and not the device having the advantage of not unnecessarily draining the battery when the device is in use, thereby increasing the operational longevity of the cordless device on a single charge.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the power cord configuration of Albietz with the cordless and battery storage device of Walton in order to provide the ability to remove the costly electrically inefficient transformer and cord configuration, thereby increasing the overall operational efficiency and reducing the manufacturing costs of the soldering iron. In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the power cord configuration of Albietz with a cordless and battery storage portable functionality, since it has been held that making an old device portable or movable without producing any new and unexpected result involves only routine skill in the art. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Albietz

with the separate switch for powering the light and not the device boost circuit of Kitsuda in order to provide a heated tip device that is constructed and function as a pocket lamp, since as evidenced by Lee, such a configuration provides the advantage of not unnecessarily draining the battery when the device is in use, thereby increasing the operational longevity of the cordless device on a single charge.

With respect to the limitations of claim 71, Kitsuda teach the lamp (6) and the igniter unit (7) being operated alternatively or simultaneously by manipulating the switch (15) and/or the switch comprising the spring contact 18 (column 2, lines 25-31; column 3, lines 1-16).

With respect to the limitation of claims 82 and 76, Walton teaches an electrical power storage device being a battery (column 2, lines 47-60; see Figure 4) as well as Kitsuda (battery 2; see Figure 1).

16. Claims 86, 87, 89, 91, 94 and 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albietz (U.S. Patent No. 2,210,352) in view of Walton (U.S. Patent No. 3,899,654) and Kitsuda (U.S. Patent No. 2,092,218), as evidenced by Lee (U.S. Patent No. 5,954,458) as applied to claim 71, 76, 81, 82, 92, 93, 95-97, 99 and 100 above, and further in view of Fiel et al. (U.S. Patent No. 5,414,927) as evidenced by Funari (U.S. Patent No. 4,171,477).

The Albietz-Walton-Kitsuda-Lee combination discloses all of the limitations, as previously set forth, except for the detachable soldering tip being graphite material

having an electrical resistivity of 1,500 micro-Ohm-cm or greater, a flexural strength of at least about 1,500 psi, and a density of about 1.5 to 1.75 g/cc; and the soldering tip can be heated to 600 °F. However, heating element having an electrical resistivity of 1,500 micro-Ohm-cm or greater, a flexural strength of at least about 1,500 psi, and a density of about 1.5 to 1.75 g/cc, as described by Fiel et al. and furthermore evidenced by Funari, is known in the art.

Fiel et al. teach a heating device (13) being made of a graphite material having an electrical resistivity of 1,500 micro-Ohm-cm or greater (450 –1200 micro-ohms-in converted to 1143 – 3048 micro-ohms-cm; see Table I), a flexural strength of at least about 1,500 psi (most carbon and graphite materials having 4000-6000 psi; invention 10000-18000 psi; column 4, lines 5 – page 5, line 7; column 10, claim 9; see Table I) and a density of about 1.5 to 1.75 g/cc (of at least about 1.75 g/cc; column 10, claim 9; see Table I), in addition to. Fiel et al. further teach an advantage of using the graphite material being isotropic properties, such as electrical resistivity, thereby minimizing hot spots and avoiding the need for additional controlling of orientation of the fabricated element (column 4, lines 51-57). In addition, Fiel et al. disclose the advantage of flexibility as well as strength of the material, thereby providing the ability to easily shape elements without significant cracking (column 4, line 58 – column 5, line 7).

Funari teaches the advantage of using a soldering tip (column 9, lines 10-20; see Figure 6) constructed of a material that may include a large range of micro-ohm-cm based on the material, where the material of notability is a material combination of carbide and graphite having a resistivity of 3200 micro-ohms-cm and up (column 7, line

58 – column 8, line 12). In addition, Funari teaches the soldering tips utilizing the a material noted above provides heat generated at the soldering tips of approximately 800 °C (1472 °F) , 750 °C (1382 °F) and 400 °C (752 °F) in various embodiments. Funari further teaches the advantage of such a material provides a soldering tip that heats up simultaneously as the soldering surface, thereby preventing the soldering tip from drawing off heat generated to the soldering surface; and to provide a soldering tip that heats up primarily because of contact resistance to the power generated by the current passing through the contact resistance, not the soldering surface itself, thereby providing better soldering fusion joints (column 4, lines 8-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to make the detachable soldering tip of Albietz-Walton-Kitsuda-Lee combination with the graphite heating element of Fiel et al. to minimize hot spots and avoid the need for additional controlling of orientation of the fabricated element as well as provide the ability to easily shape elements without significant cracking, since as evidenced by Funari, substituting a graphite heating element will provide a soldering tip heating element that heats up simultaneously as the soldering surface and that heats up primarily because of contact resistance to the power generated by the current passing through the contact resistance, not the soldering surface itself, thereby providing better soldering fusion joints.

17. Claims 88 and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albietz (U.S. Patent No. 2,210,352) in view of Walton (U.S. Patent No. 3,899,654) and Kitsuda (U.S. Patent No. 2,092,218), Lee (U.S. Patent No. 5,954,458), Fiel et al. (U.S. Patent No. 5,414,927) and Funari (U.S. Patent No. 4,171,477) as applied to claims 86, 87, 89, 91, 94 and 98 above, and further in view of Sweetland (U.S. Patent No. 5,394,910).

The Albietz-Walton-Kitsuda-Lee-Fiel-Funari combination discloses all of the limitations, as previously set forth, except for the detachable soldering tip having a thermal conductivity of less than or equal to 10 BTU/hr-ft-degree.

Sweetland teaches that typical carbon and graphite used in high temperature applications have an average thermal conductivity of 8 BTU/hr-ft-degree F, Sweetland further teaches that some applications prefer high thermal conductivity ranges such as 50 or 60 BTU/hr-ft-degree F. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to make having a thermal conductivity of less than or equal to 10 BTU/hr-ft-degree F, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Furthermore, to provide the detachable soldering tip having a thermal conductivity of less than or equal to 10 BTU/hr-ft-degree would have been a mere engineering expediency as Sweetland clearly teaches the use of carbon and graphite in high temperature applications is dependent on the application in which the element is used.

18. Claim 101 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albietz (U.S. Patent No. 2,210,352) in view of Walton (U.S. Patent No. 3,899,654) and Kitsuda (U.S. Patent No. 2,092,218), as evidenced by Lee (U.S. Patent No. 5,954,458) as applied to claim 71, 76, 81, 82, 92, 93, 95-97, 99 and 100 above, and further in view of Fiel et al. (U.S. Patent No. 5,414,927) as evidenced by Funari (U.S. Patent No. 4,171,477).

The Albietz-Walton-Kitsuda-Lee combination discloses all of the limitations, as previously set forth, except for the light being a light emitting diode.

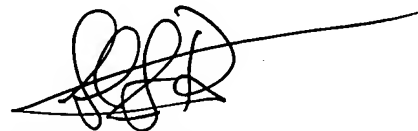
However, light emitting diodes being utilized in soldering iron applications is known in the art. Pachschröll, for example, teaches a lamp being an LED (column 4, lines 1-8). It is known in the art the utilization of LEDs for lamp application provides the ability to reduce the necessary power required to activate and maintain a lamp application as well as increasing the operational longevity of the lamp device due to LEDs inherent longevity characteristic. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the lamp of the Albietz-Walton-Kitsuda-Lee combination with the usage of an LED instead in order to provide the ability to reduce the necessary power required to activate and maintain a lamp application as well as increasing the operational longevity of the lamp device due to LEDs inherent longevity characteristic, thereby providing a more efficient soldering device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Ralis whose telephone number is 571-272-6227. The examiner can normally be reached on Monday - Friday, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Stephen J Ralis
Examiner
Art Unit 3742

SJR
January 2, 2008



TU BA HOANG
SUPERVISORY PATENT EXAMINER